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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,417	03/25/2004	Koji Ohashi	119248	5277

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EXAMINER

THOMAS, TONIAE M

ART UNIT PAPER NUMBER

2822

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

212

Office Action Summary

Application No.

10/808,417

Applicant(s)

OHASHI ET AL.

Examiner

Toniae M. Thomas

Art Unit

2822

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address -

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 6, 7, 17 and 18 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5 is/are allowed.
- 6) ☒ Claim(s) 8, 13 and 15 is/are rejected.
- 7) ☒ Claim(s) 9-12, 14 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08/09/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This action is a first Office action on the merits of Application Serial No. 10/808,417. Currently, claims 1-18 are pending.

Election/Restrictions

2. Applicant's election without traverse of Group I (claims 1-5 and 8-16) in the reply filed on 16 August 2005 is acknowledged. Claims 6, 7, 17, and 18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 8, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushikubo et al. (US 5,851,841).

The Ushikubo et al. patent discloses a method of manufacturing a ferroelectric capacitor (fig. 1, 2, and accompanying text). The method comprises: forming a lower electrode on a body 1 (col. 6, lines 32-41); forming a ferroelectric film 5 on the lower electrode by crystallizing a raw material including a complex oxide (col. 6, lines 47-50 and col. 7, lines 49-54); and

forming an upper electrode 6 on the ferroelectric film (fig. 1 and col. 7, lines 32-33). The crystallization, in turn, includes: performing a first heat treatment in a first condition in which a predetermined pressure and a predetermined temperature are applied (col. 7, lines 29-31); and maintaining a second condition during a second heat treatment, in which a pressure and a temperature lower than the pressure and the temperature in the first condition are applied, after the heat treatment in the first condition (col. 7, lines 49-52). The temperature in the second condition can range from 400°C - 750°C. However, Ushikubo discloses one example in which the temperature in the second condition is 500°C or lower, which is lower than the temperature in the first heat treatment (col. 8, lines 41-50).

A second heat treatment, in which a temperature higher than the temperature in the first condition is applied, is performed at after forming the upper electrode (col. 8, lines 41-50). This is the case when the temperature in the second heat treatment is greater than 600°C.

A rapid thermal annealing method is used to perform the second heat treatment (col. 8, lines 41-50).

Ushikubo does not explicitly teach that the crystallization steps are repeated. However, it is common in semiconductor processing to run fabrication processes repeatedly. The process of Ushikubo may be carried out repeatedly to form substantially identical ferroelectric capacitors on multiple

wafers. Therefore, the limitation of repeating the heat treatment and maintaining steps as recited in claim 8 is taken to be obvious over the prior art.

Allowable Subject Matter

4. Claims 1-5 are allowable over the prior art of record. The prior art of record does not anticipate, teach or suggest a method of manufacturing a ferroelectric film including a complex oxide, which comprises a raw material, substantially as claimed, wherein the method comprises repeatedly performing a heat treatment in a first condition and maintaining a second condition at a temperature and pressure lower than the temperature and pressure in the first condition to crystallize the raw material.

5. Claims 9-12, 14, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toniae M. Thomas whose telephone number is (571) 272-1846. The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 5:30 p.m.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Art Unit: 2822

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TMT
30 September 2005



AMIR ZAFARIAN
EXAMINER
(TECHNICAL FIELD)